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Literature compendium

Study visit

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1. Strauss et.al. 2011, <i>Evidence-based medicine – How to Practice and Teach EBM</i> , Third Edition, Elsevier Limited.....	2
2. King et.al. 2014, <i>Varney’s Midwifery</i> , Fifth Edition, Jones and Bartlett Learning LLC.....	10
3. Britton B. 2017, <i>Breastfeeding – A natural phenomenon or a cultural construct</i> . Chapter 20 in Squire C. <i>The Social Context of Birth</i> , Third Edition CRC Press.....	18
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Information regarding chosen literature: Strauss et. al.

This is a brief introduction to the concept of evidence-based medicine.

We have chosen to present this concept to you, as it is an example of the literature we introduce and teach our students at the Danish Midwifery education at UCN. The concept of evidence-based medicine is in many ways a cornerstone in Danish healthcare professionals, including midwives, overall approach the their patients.

THIRD EDITION



This book is the classic introduction to EBM and is one of the most influential medical books of recent years. It explains how to:

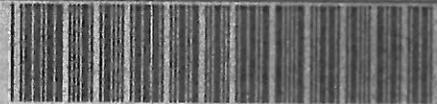
- Ask answerable clinical questions
- Translate them into effective searches for the best evidence
- Critically appraise that evidence for its validity and importance
- Integrate it with your patients' values and preferences

In its first two editions it has sold 125,000 copies in English and has been translated into several languages. Following the retirement of David Sackett from the EBM field and from the author team of the book, his colleagues have revised the book throughout and, in answer to common criticisms of the practicality of EBM, have focused particularly on how EBM can be practiced in real-time in a variety of clinical settings.

Included with the book is a CD which contains PDA tools, as well as other resources, to facilitate the practice of EBM.



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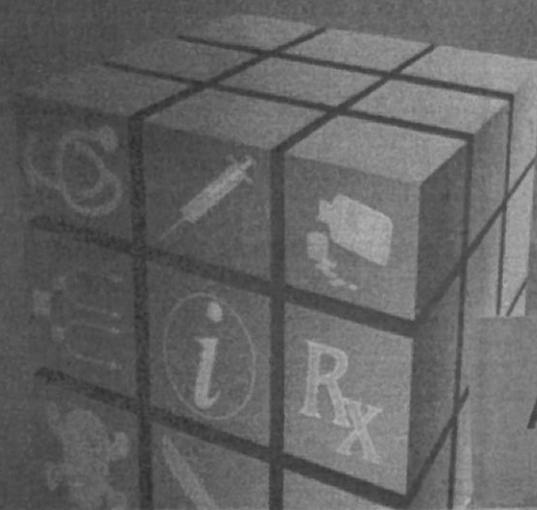


EVIDENCE-BASED MEDICINE



How to Practice and Teach EBM

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AV-materiale



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in subsequent editions of this book. In the meantime, we take cheerful responsibility for the parts of the current edition that are still fuzzy, wrong, or boring.

Introduction

WHAT IS EBM?

Evidence-based medicine (EBM) requires the integration of the best research evidence with our clinical expertise and our patient's unique values and circumstances.

- By *best research evidence* we mean valid and clinically relevant research, often from the basic sciences of medicine, but especially from patient-centered clinical research into the accuracy of diagnostic tests (including the clinical examination), the power of prognostic markers, and the efficacy and safety of therapeutic, rehabilitative, and preventive regimens. New evidence from clinical research both invalidates previously accepted diagnostic tests and treatments and replaces them with new ones that are more accurate, more efficacious, and safer.
- By *clinical expertise* we mean the ability to use our clinical skills and past experience to rapidly identify each patient's unique health state and diagnosis, their individual risks and benefits of potential interventions, and their personal circumstances and expectations.
- By *patient values* we mean the unique preferences, concerns and expectations each patient brings to a clinical encounter and which must be integrated into clinical decisions if they are to serve the patient.
- By *patient circumstances* we mean their individual clinical state and the clinical setting.

WHY THE INTEREST IN EBM?

Interest in EBM has grown exponentially since the coining of the term¹ in 1992 by a group led by Gordon Guyatt at McMaster University, from one MEDLINE citation in 1992 to

over 13 000 in February 2004. Professional organizations and training programs for health care professionals have moved from whether to teach EBM to how to teach it, resulting in an explosion in the number of courses, workshops and seminars offered in this practice. Reports describing evidence-based rejuvenations of traditional educational events are burgeoning, and case reports and a survey of residency programs have concluded that some of the determinants of continuing high attendance at postgraduate journal clubs include the teaching of critical appraisal skills and emphasizing the primary literature (and, not surprisingly, providing free food).^{2,3} Also, familiarity with EBM terminology has extended into the popular press, as evidenced by an article in *The Times* describing the number needed to treat.⁴

The rapid spread of EBM has arisen from four realizations and is made possible by five recent developments. The realizations, attested to by ever-increasing numbers of clinicians, are:

1. Our daily need for valid information about diagnosis, prognosis, therapy, and prevention (up to five times per inpatient⁵ and twice for every three outpatients).⁶
2. The inadequacy of traditional sources for this information because they are out of date (textbooks⁷), frequently wrong (experts⁸), ineffective (didactic continuing medical education⁹), or too overwhelming in their volume and too variable in their validity for practical clinical use (medical journals¹⁰).
3. The disparity between our diagnostic skills and clinical judgment, which increase with experience, and our up-to-date knowledge¹¹ and clinical performance,¹² which decline.
4. Our inability to afford more than a few seconds per patient for finding and assimilating this evidence¹³ or to set aside more than half an hour per week for general reading and study.¹⁴

Until recently, these problems were insurmountable for full-time clinicians. However, five developments have permitted a turnaround in this state of affairs:

1. The development of strategies for efficiently tracking down and appraising evidence (for its validity and relevance).
2. The creation of systematic reviews of the effects of health care (epitomized by the Cochrane Collaboration¹⁵).
3. The creation of evidence-based journals of secondary publication (which publish the 2% of clinical articles that are both valid and of immediate clinical use) and of evidence-based summary services such as Clinical Evidence.
4. The creation of information systems for bringing the foregoing to us in seconds.¹³
5. The identification and application of effective strategies for lifelong learning and for improving our clinical performance.¹⁶

This book is devoted to describing these innovations, demonstrating their application to clinical problems, and showing how they can be learned and practiced by clinicians who have just 30 minutes per week to devote to their continuing professional development.

HOW DO WE ACTUALLY PRACTICE EBM?

The full-blown practice of EBM comprises five steps; this book takes them up in turn:

- *Step 1:* converting the need for information (about prevention, diagnosis, prognosis, therapy, causation, etc.) into an answerable question (Ch. 1).
- *Step 2:* tracking down the best evidence with which to answer that question (Ch. 2).

- *Step 3*: critically appraising that evidence for its validity (closeness to the truth), impact (size of the effect), and applicability (usefulness in our clinical practice) (the first halves of Chs 3–6).
- *Step 4*: integrating the critical appraisal with our clinical expertise and with our patient's unique biology, values, and circumstances (the second halves of Chs 3–6).
- *Step 5*: evaluating our effectiveness and efficiency in executing steps 1–4 and seeking ways to improve them both for next time (Ch. 8).

When we examine our practice and that of our colleagues and trainees in this five-step fashion, we identify that clinicians can incorporate evidence into their practices in three ways. First, is the "doing" mode, in which at least the first four steps above are carried out. Second, is the "using" mode, in which searches are restricted to evidence resources that have already undergone critical appraisal by others, such as evidence summaries (thus skipping step 3). Third, is the "replicating" mode, in which the decisions of respected opinion leaders are followed (abandoning at least steps 2 and 3). All three of these modes involve the integration of evidence (from whatever source) with our patient's unique biology, values and circumstances of step 4, but they vary in the execution of the other steps.

For conditions we encounter every day (e.g. unstable angina and venous thromboembolism), we need to be "up-to-the-minute" and very sure about what we are doing. Accordingly, we invest the time and effort necessary to carry out both steps 2 (searching) and 3 (critically appraising), and operate in the "doing" mode; all the chapters in this book are relevant to this mode.

For conditions we encounter less often (e.g. aspirin overdose), we conserve our time by seeking out critical appraisals already performed by others who describe (and stick to!) explicit criteria for deciding what evidence they selected and how they decided whether it was valid. We leave out the time-consuming step 3 (critically appraising)

and carry out just step 2 (searching) but restrict the latter to sources that have already undergone rigorous critical appraisal (e.g. *ACP Journal Club*). Only the third portions ("Can I apply this valid, important evidence to my patient?") of Chapters 3–6 are strictly relevant here, and the growing database of pre-appraised resources (described in Ch. 2 and on the accompanying CD) is making this "using" mode increasingly feasible for busy clinicians.

For the problems we're likely to encounter very infrequently (e.g. graft vs. host disease in a bone marrow transplant recipient), we "blindly" seek, accept, and apply the recommendations we receive from authorities in the relevant branch of medicine. This "replicating" mode also characterizes the practice of medical students and clinical trainees when they haven't yet been granted independence and have to carry out the orders of their consultants. The trouble with the "replicating" mode is that it is "blind" to whether the advice received from the experts is authoritative (evidence-based, resulting from their operating in the "appraising" mode) or merely authoritarian (opinion-based). Sometimes we can gain clues about the validity of our expert source (Do they cite references? Are they a member of the Cochrane Collaboration?), although this may require some probing ("Can you tell me the basis for that? Do you have a reference?"). If we tracked the care we give when operating in the "replicating" mode into the literature and critically appraised it, we would find that some of it was effective, some useless, and some harmful. But in the "replicating" mode we'll never be sure which.

The authors of this book don't practice as EBM doers all of the time and we find that we move between the different modes of practicing EBM depending on the clinical scenario, the frequency with which it arises, and the time and resources available to address our clinical questions. And, while some clinicians may want to become proficient in practicing all five steps of EBM, many others would instead prefer to focus on becoming efficient users (and knowledge managers) of evidence. This book tries to meet the needs of these various end-users. And, for those readers

who are teachers of EBM, we try to describe various ways in which the learning needs of the different learners can be achieved, including those who want to be primarily users or doers of EBM.

CAN CLINICIANS ACTUALLY PRACTICE EBM?

Surveys conducted amongst clinicians from various disciplines have found that clinicians are interested in learning the necessary skills for practicing EBM.^{17,18} One survey of UK GPs suggests that many clinicians already practice in the "using" mode, using evidence-based summaries generated by others (72%) and evidence-based practice guidelines or protocols (84%).¹⁸ On the other hand, far fewer claimed to understand (and to be able to explain) the "appraising" tools of number needed to treat (NNT) (35%) and confidence intervals (20%). Interestingly, a recent study found that participants' self-ratings of their understanding of terms used in EBM (e.g. relative risk and NNT) differed substantially from an objective, criterion-based assessment.¹⁹ Moreover, comments from participants reflected considerable misunderstanding of these terms.

If clinicians have the necessary skills for practicing EBM, can it be done in real-time? When a busy (180+ admissions per month) inpatient medical service brought electronic summaries of evidence previously appraised either by team members (critically appraised topics—CATs) or by summary journals to working rounds, it was documented that, on average, the former could be accessed in 10 seconds and the latter in 25.¹³ Moreover, when assessed from the viewpoint of the most junior member of the team caring for the patient, this evidence changed 25% of their diagnostic and treatment suggestions and added to a further 23% of them. This study has been replicated in other clinical settings, including an obstetrical service.²⁰ Finally, clinical audits from several practice settings have found that there is a significant evidence base for the primary interventions that are encountered on these clinical services.²¹⁻²⁵

WHAT'S THE "E" FOR EBM?

There is an accumulating body of evidence relating to the impact of EBM on health care professionals, from systematic reviews of training in the skills of EBM²⁶ to qualitative research describing the experience of EBM practitioners.²⁷ However, studies of the effect of teaching and practicing EBM are challenging to conduct. In many studies, the intervention has been difficult to define. It's unclear what the appropriate "dose", "formulation", "frequency" or "route" should be. Some studies use an approach to clinical practice, whereas others use training in one of the discrete "microskills" of EBM, such as MEDLINE searching²⁸ or critical appraisal. Moreover, learners have different learning needs and styles, and these differences must be reflected in the educational experiences provided.

Just as the intervention has proved difficult to define, the evaluation of whether the intervention has met its goals has been challenging. Effective EBM interventions will produce a wide range of outcomes. Changes in knowledge and skills are relatively easy to detect and demonstrate. Changes in attitudes and behaviors are harder to confirm. A recent study has shown that a multifaceted EBM educational intervention (including access to evidence resources and a seminar series using real clinical scenarios) significantly improved evidence-based practice patterns in a district general hospital.²⁹ Still more challenging is detecting changes in clinical outcomes. To date, studies demonstrating better patient survival when practice is evidence-based (and worse when it isn't) are limited to outcomes research.^{30,31} No such evidence is available from randomized trials because no investigative team or research granting agency has yet overcome the problems of sample size, contamination, blinding, and long-term follow-up which such a trial requires. Moreover, there are ethical concerns with such a trial: is withholding access to evidence from the control clinicians ethical?

But, by questioning the "E" for EBM, are we asking the right question? It has been recognized that providing evidence from clinical research is a necessary but not

sufficient condition for the provision of optimal care. This has created interest in knowledge translation, the scientific study of the methods for closing the knowledge-to-practice gap and the analysis of barriers and facilitators inherent in this process.³² The process from knowledge to practice involves several stages, such as initial awareness, appraisal and acceptance, skill and ability in the new technique, reminder systems, and skilled communication with patients (Figure I.1). Proponents of knowledge translation have identified that changing behavior is a complex process requiring comprehensive approaches directed towards patients, physicians, managers, and policy-makers, and provision of evidence is but one component.³³ Finally, it may be too soon to tell if EBM changes clinical performance and outcomes, because advocates suggest that it requires lifelong learning and this is not something that can be measured over the short-term.

WHAT ARE THE LIMITATIONS OF EBM?

Discussion about the practice of EBM naturally engenders negative and positive reactions from clinicians. Some of the criticisms focus on misunderstandings and misperceptions of EBM, such as the concerns that it ignores patient values and preferences and promotes a cookbook approach.³⁴ An examination of the definition and steps of EBM quickly dismisses these criticisms. Others have expressed worry that EBM will be hijacked by managers to promote cost-cutting. However, EBM is not an effective cost-cutting tool, since providing evidence-based care directed toward maximizing patients' quality of life often increases the costs of their care and raises the ire of health economists.³⁵ The self-reported employment of the "using" mode by a great majority of front-line GPs dispels the contention that EBM is an ivory tower concept—another common criticism. Finally, we hope that the rest of this book will put to rest the concern that EBM leads to therapeutic nihilism in the absence of randomized trial evidence.

However, this debate has highlighted limitations unique to the practice of EBM that must be considered. For example,

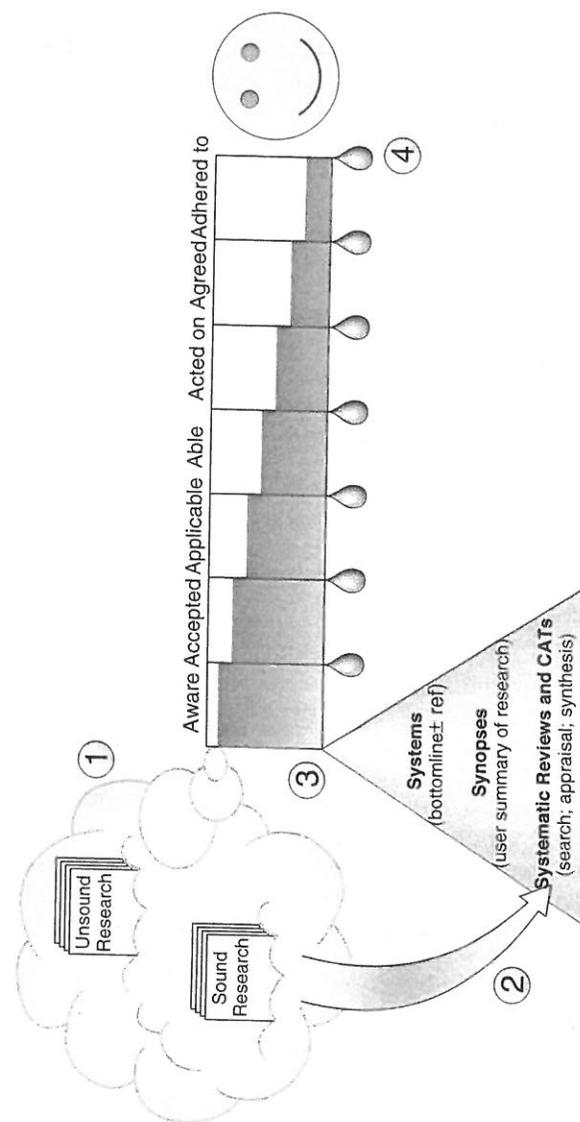


Figure I.1 The pipeline from knowledge to practice.

the need to develop new skills in seeking and appraising evidence cannot be underestimated. And the need to develop and apply these skills within the time constraints of our clinical practice must be addressed.

This book attempts to tackle these limitations and offers potential solutions. For example, EBM skills can be acquired at any stage in clinical training, and members of clinical teams at various stages of training can collaborate by sharing the searching and appraising tasks. Incorporating the acquisition of these skills into grand rounds, as well as postgraduate and undergraduate seminars, integrates them with other skills being developed in these settings. These strategies are discussed at length in Chapter 7. Important developments to help overcome the limited time and resources include the growing numbers of evidence-based journals and evidence-based summary services. These are discussed throughout the book and in detail in Chapter 2. Indeed, one of the goals of this edition of the book is to provide tips and tools for practicing EBM in "real-time". In addition, we encourage readers to use the website to let us know about ways in which they've managed to meet the challenges of practicing EBM in real-time.

HOW IS THIS PACKAGE (THE BOOK, THE ACCOMPANYING CD, AND THE ASSOCIATED WEBSITE) ORGANIZED?

The overall package is designed to help practitioners from any health care discipline learn how to practice evidence-based health care. Thus, although the book is written within the narrow perspectives of internal medicine and general practice, the CD provides clinical scenarios, questions, searches, critical appraisals, and evidence summaries from other disciplines, permitting readers to apply the strategies and tactics of evidence-based practice to any health discipline.

For those of you who want to become more proficient at being "doers" of EBM, we would suggest that you take a look at Chapters 1–8. For readers who want to become "users" of EBM, we would suggest tackling Chapters 1 and 2, focusing on question formulation and matching those questions to the various evidence resources. We have also

provided tips on practicing EBM in real-time throughout the book and on the accompanying CD. Finally, for those interested in teaching the practice of EBM, we have dedicated Chapter 7 to this topic.

The chapters and appendices that comprise this book constitute a traditional way of presenting our ideas about EBM. It offers the "basic" (or "Ka") version of the model for practicing EBM. For those who want more detailed discussion, we would suggest you review some other resources.³⁶ And, while the examples were current when we wrote this in 2004, by the time this book appears in print, they will be outdated! So, we would suggest that you visit our website (www.cebm.utoronto.ca) for ongoing materials and practice tools. The website can also be used to contact us; in particular, we'd like to hear where we've gone wrong and what we could do better in future editions.

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Guidance for reading King et al 2014, pp. 824-829:

The pages focus on the initial assessment of a labouring woman at the delivery ward. Reading this you must focus on which examinations and tests the midwife must do and why. The content will be used in a simulation played by volunteers amongst the participants in the study visit. Please note that in a simulation this theory would be taught prior to the simulation. However, during the study visit this will not be the case due to time restraints, so please keep that in mind while reading the text.

THIS IS PART OF CHAPTER ABOUT
INTRAPARTUM CARE.

Midwifery Management During the First Stage of Labor

The dynamic nature of maternal and fetal responses to labor make the cyclic characteristics of the midwifery management process especially valuable as a structure for planning labor care. Continual reassessment with ongoing evaluation and modification of the management plan throughout the labor is to be expected.

Initial Evaluation of the Woman and Fetus

Initial evaluation of a woman presenting with signs and symptoms of labor includes review of history,

physical assessment, and, often, laboratory investigations. The initial assessment of a woman who presents in labor not only ascertains the current physical well-being of the woman and fetus, but also assesses the encounter within the context of her medical and obstetric history, her social situation, and her expectations. A comprehensive approach is necessary to identify actual and potential problems and to create a mutually agreeable and appropriate plan of care.

History

If the woman's prenatal record is available, it can be used as the source of information for much of the history. Specifically, personal information, past obstetric history, past medical and primary healthcare history, and family history should be reviewed. Present pregnancy history should be reviewed to confirm gestational age and estimated date of delivery, significant prenatal events, and presence of a personalized plan for birth. This spares the woman from having to reiterate history she has given before and from being disturbed at a time when she may be coping with the demands and stresses of labor. Critical items of the history should be double-checked with the woman to verify the existence of drug allergies, blood transfusions and reactions, and major obstetric or medical complications during her pregnancy. Documentation that the prenatal record was reviewed should be included in her intrapartum medical record. An interim history that includes any change in health status from the time of the last documented visit to the present encounter, chief complaint, and history of present illness, coupled with a brief review of pertinent systems, will complete the history database and give direction to the physical examination.

A woman presenting for labor evaluation without an available prenatal record presents a special challenge for caregivers. The woman may have been receiving regular prenatal care but simply not have records available for a variety of reasons, such as miscommunication about expected birth location or travel. However, women who have received less than adequate prenatal care are at increased risk of unexpected adverse obstetric complications including preterm birth and stillbirth, giving birth to infants who are large or small for gestational age, and early neonatal death.⁶⁰ In the absence of a prenatal record, the midwife must skillfully elicit essential information beginning with those data most relevant to the acuity of the clinical scenario. Table 26-4 outlines the essential components of the health history when

evaluating a woman presenting for labor evaluation and identifies their significance.

Physical Examination

Essential components of the physical and pelvic examination performed at the initial labor evaluation are presented in Table 26-5. A physical examination that was performed prenatally can be reviewed as a baseline for the current physical examination when a prenatal record is available. An abbreviated examination can then be performed that focuses on any problem areas identified. Documentation that

the previous examination was reviewed should be included in the woman's healthcare record. A comprehensive physical examination is indicated when a woman has no prenatal records available or has received inadequate prenatal care.

Physical examination findings or vital signs indicative of a potential or actual complication require further evaluation. For example, an elevated blood pressure is an indication for eliciting and evaluating reflexes and for assessing for the presence of clonus.

Controversy exists about the role of digital cervical examinations in the initial and ongoing evaluation

Table 26-5 Essential Components of Health History When Evaluating a Woman Presenting with Signs and Symptoms of Labor

History Element	Significance
Age	Birth at the extremes of the reproductive lifespan is associated with an increased risk for adverse perinatal outcomes
Parity	Parity influences labor progress and labor duration (e.g., progress is typically slower in nulliparous women compared to multiparous women)
Estimated date of delivery and estimated weeks of gestational age	Identifies potential for newborn complications related to prematurity or postmaturity and establishes a baseline for evaluating fetal size as related to gestational age
Complications of current pregnancy including group B streptococcus status	Identifies existing or potential problems that may influence management of the current labor and birth
Major complications of previous pregnancies, including prenatal, intrapartum, and postpartum periods	Identifies potential recurring problems that may affect the current labor and birth
Previous labor experience, including duration	Previous labor experience influences expectations for labor progress and makes known previously used labor coping strategies
Mode of previous births/deliveries	Identifies previous operative vaginal deliveries or cesarean sections, which may influence management of current labor and birth
Size of previous babies	Suggests an estimate of pelvic adequacy
Fetal movement pattern	Reflects fetal well-being
Vaginal bleeding	Differentiated from bloody show, vaginal bleeding is abnormal and will typically contraindicate performance of a digital cervical examination and indicate necessity for further evaluation and physician consultation, collaboration, or referral
Status of membranes	Duration of ruptured membranes and characteristics of amniotic fluid will influence management decisions
Time of onset of contractions, and character of contractions from onset to the present, including frequency, duration, intensity, and aggravating and relieving factors	Establishes the probable start of labor and helps discriminate false labor from true labor
Last oral intake	Provides a baseline from which to assess energy reserves and fluid status; also useful in anesthesia management in the event of surgery

Table 26-5 Essential Components of the Physical Examination When Evaluating a Woman Presenting with Labor Signs and Symptoms

Physical Examination Element	Significance
Vital signs: blood pressure, temperature, pulse, respirations	Elevated blood pressure may indicate a hypertensive disorder, while lowered blood pressure may indicate shock. In the presence of a normal diastolic measurement, elevation in systolic blood pressure usually indicates anxiety or pain Elevated temperature indicates an infectious process or dehydration Elevated pulse and/or respirations may indicate infection, shock, dehydration, or anxiety
Auscultation of heart and lungs	Screens for and identifies acute or previously unrecognized conditions that could potentially adversely affect the current labor and birth
Abdominal palpation to determine contraction pattern and fetal lie, presentation, position, and engagement	Contraction pattern helps determine labor status Fetal lie, presentation, and position influence the course of labor and guide care decisions regarding mode of delivery and necessity for consultation, collaboration, or referral Engagement of the fetal presenting part is reassuring for pelvic adequacy
Abdominal palpation to determine estimated fetal weight and fundal height	In relation to gestational age, identifies the possibility of inaccurate dating, smaller or larger than expected fetus or multiples, oligohydramnios or polyhydramnios, or other abnormalities and their associated complicating factors
Visual inspection for abdominal scars	Confirms surgical history or identifies previously unidentified surgical procedures, including previous cesarean sections
Assessment for presence of peripheral or facial edema	Facial edema alone or in association with peripheral edema is a classic sign of preeclampsia
Cervical Examination to Evaluate:	
Cervical effacement and dilatation	Progressive cervical effacement and dilatation is the mark of true labor
Position of the cervix	Location of the cervix in an anterior or middle position is associated with greater readiness for labor
Station of fetal presenting part	Progressive fetal descent is indicative of pelvic adequacy and labor progression
Presence of molding or caput succedaneum	The presence or absence of molding and/or caput indicates fetal adaptation to the maternal pelvis and indirectly signifies pelvic adequacy
Fetal lie, presentation, and position	Digital examination findings confirm and enhance abdominal examination findings relative to fetal lie, presentation, and position
Tone and elasticity of vagina and perineum	Potential for lacerations or need for episiotomy may be suggested by assessment of the tone and elasticity of the vagina and perineal body
Confirmation of membrane status	Palpation of intact fetal membranes or amniotic fluid expulsion with cervical examination is suggestive of membrane status
Visual inspection of perineum	Identification of lesions, vulvar varicosities, and vaginal discharge including frank bleeding will impact the management plan
Assessment of fetal heart rate	Indicates fetal well-being
Optional and Supplemental Physical Examination Elements	
Measurement of maternal weight	Relevant when compared to prepregnancy weight to ascertain total weight gain during pregnancy or to previous prenatal visit measurements to assess interval weight gain
Clinical pelvimetry	Supports clinical judgment when estimating pelvic adequacy
Evaluation of reflexes and determining the presence of clonus	Hyperreflexia and clonus are signs of severe preeclampsia/eclampsia
Speculum examination	Provides visualization of the cervix and vaginal vault to confirm rupture of membranes, collect laboratory specimens, and estimate cervical dilatation and effacement.

of a woman with labor signs and symptoms. The unique clinical situation of the laboring woman and her desires along with the clinical judgment and expertise of the midwife are taken into consideration when considering the necessity of performing a digital cervical examination.

It is common practice in institutions that have continuous electronic fetal monitoring capability to obtain an initial baseline fetal heart rate (FHR) recording (e.g., 20 minutes) as the means of initial evaluation of fetal well-being for most, if not all, women presenting for evaluation of labor. This practice, when applied to women who are at low obstetric and medical risk for fetal acidemia, does not improve maternal or neonatal outcomes and, when compared to initial assessment by intermittent monitoring, may be associated with an increase in intrapartum interventions including continuous electronic fetal monitoring and cesarean delivery.⁶¹ National guidelines are silent on the preferred method of evaluation of fetal heart rate for women presenting for evaluation with labor signs and symptoms, but are clear regarding the appropriateness of intermittent auscultation for ongoing evaluation of low-risk women in labor.^{62,63}

Laboratory Investigation

Available prenatal records can be reviewed to identify the woman's blood type and Rh status, anemias,

glucose tolerance testing, and specific perinatal infections including GBS, hepatitis B, and HIV. In the case of a woman presenting with no prenatal record, all routine prenatal lab work will need to be collected to provide a baseline for development of a management plan.

Clinical judgment and institutional policy will influence the decision to order further laboratory studies. If the woman will be having an intravenous infusion, blood specimens can be obtained concurrently with intravenous line placement. Common laboratory studies for evaluation of a woman with labor signs and symptoms are presented in Table 26-6.

Confirmation of Labor Status

A diagnosis of labor warrants admission to the birth center/hospital or continuous attendance when a home birth is planned. Because dilation rates indicative of active labor do not begin for many women until 6 cm or more,⁶ labor status determinations must be based on at least two adequately spaced cervical examinations—for example, 2 to 4 hours apart. In the presence of regular, painful contractions and complete or near-complete effacement, it is reasonable to consider a woman to be in active labor at 4 cm or 5 cm dilatation *if immediately preceded by cervical change over time* (i.e., 1 cm or more in a 2-hour or shorter window) or at 6 cm or more regardless

Table 26-6 Common Laboratory Investigations for a Woman Presenting with Labor Signs and Symptoms

Laboratory Test	Significance
Complete blood count (CBC)	Provides baseline measures of hemoglobin and hematocrit, thereby evaluating for anemia, a risk factor for postpartum hemorrhage Provides a baseline for the white blood cell count, which can indicate infection—although transiently high values are common with labor Provides a baseline platelet count
Blood type, Rh status, and antibody screen ^a	To confirm prenatal blood group and Rh status Provides a comparative value to prenatal results to assess development of maternal antibodies Provides basic information for a blood bank in the event of blood transfusion
Urinalysis	Identifies the presence of protein, a marker for preeclampsia Identifies the presence of glucose, a marker for poorly controlled diabetes Identifies the presence of ketones, a reflection of fat metabolism and current nutrition status Provides indication of hydration status through specific gravity measure Identifies abnormal components in the urine that may direct differential diagnosis toward urinary tract infection

^aTest can also be ordered as a "type and hold," which identifies the blood type and Rh status but holds further evaluation of a coagulated sample until the need for a blood transfusion is identified.

of the rate of previous cervical change. Unless labor is clearly advanced, a single-point cervical dilation measurement does not reliably differentiate labor phases. When a diagnosis of labor cannot be made with relative certainty, observation before admission to the birthing unit is prudent assuming the woman is opting to give birth in the hospital.

It may take several hours of ongoing assessment to differentiate between pre labor, latent labor, and active labor. Between assessments and after fetal well-being is confirmed, the woman may be encouraged to walk, rock, sit on a birthing ball, or simply rest. In hospital and birth center settings, when no change in dilation is noted at the next examination, the woman may safely go home if she lives nearby, has no transportation problems, and wants to go home.

In making a diagnosis of labor, clinicians must carefully differentiate not only between true and pre labor, but also between labor and any obstetric or nonobstetric discomforts or complications that masquerade or can be misinterpreted as labor, such as urinary tract infections or placental abruption.

Varney's Midwifery

Fifth Edition



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To whom it may concern,

This is a brief introduction to why the text by Cathryn Britton: 'Breastfeeding. A natural phenomenon or a cultural construct?' has been chosen.

The text is an example of the contents of the literature we introduce and teach our students regarding breastfeeding.

The text shows that breastfeeding is not an isolated action, but how it is a part of the formation of the family and how the father/partner also has a role in this. The cultural context is The United Kingdom, but we find that the perspectives on cultural constructions regarding this topic are relevant for any health worker, wherever they may be working, giving guidance or instructing woman and/or their families on breastfeeding.

You may skip reading the section 'Historical influences', as it focusses' on the historical influence in The United Kingdom.

Yours sincerely

Ida Dayyani and Malene Kirstein Cohen

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20 Breastfeeding

A natural phenomenon or a cultural construct?

Cathryn Britton

There can be no dispute that breastfeeding enhances the health of babies and their mothers. Yet despite the evidence of its health-enhancing properties, women in the United Kingdom often either choose not to breastfeed or curtail the activity after a relatively short time. Traditionally, health professionals have considered health promotion to be an important aspect of encouraging more women to breastfeed. There is an assumption that imparting knowledge may change attitudes and beliefs. However, it is naive to assume that if women are simply given more information about breastfeeding, the rates of breastfeeding will increase. The majority of women in the United Kingdom are not ignorant of the health benefits of breastfeeding; a variety of influences affect their infant feeding decisions. The main focus of this chapter will be on the social and cultural influences that exist within the United Kingdom that might help or hinder breastfeeding.

Introduction

It is generally accepted that most women, after giving birth, are physiologically able to lactate. The biology of lactation has been well described elsewhere (e.g. Rankin 2011; Wambach and Riordan 2015). Women, like all female mammals, have breasts in order to suckle their young. There is an implied natural law and naturalness with regard to breastfeeding. Lactation occurs without question; women expect their breasts to produce milk. In some societies in the world breastfeeding is performed not only by the infant's mother, but is shared by other members of the kin group (Clarke 2007; Hrdy 2000). This type of *wet-nursing* has an important function in strengthening kin ties. It might be considered that breast milk will transmit important qualities to the infant (Parkes 2004). In societies where breastfeeding of the infant is not confined to the infant's mother, milk kinship might be formed with the other women who feed the infant (Ensel 2002; Parkes 2004, 2005). The breastfeeding woman might not be biologically related to the infant, but through a milk tie a powerful bond is created between the child, woman and wider kin group (Lambert 2000; MacClancy 2003; Huda 2014).

Around the world women breastfeed without question. There is a natural assumption that the breast will be offered to the newborn infant and that breast milk will nourish the infant until weaning. In many societies there is little discourse on the health benefits of breastfeeding, because the latter is fundamental to child survival. There is one exception to this – namely, the ingestion of colostrum. Ergenekon-Ozetcı et al. (2006) and McLachlan and Forster (2006) provide examples of the negative health beliefs associated with colostrum and their effect on the initiation of breastfeeding. Commonly quoted views are that colostrum is 'dirty', 'bad for the baby' and 'old and stale'. It is difficult to explain why these beliefs about

colostrum exist. However, in the United Kingdom, the dominant discourse of breastfeeding focuses on promoting the activity by emphasising its health benefits.

Health benefits

There are many health benefits to be gained by a mother breastfeeding her baby, both for the infant and the woman. Research studies have demonstrated a positive correlation between breastfeeding and subsequent health in childhood. These include studies showing a reduction in gastrointestinal infections (Duijts et al. 2010), respiratory infections (Bachrach et al. 2003; Quigley et al. 2007), ear infections (Ip et al. 2007), allergic diseases (Greer et al. 2008) and insulin-dependent diabetes mellitus (Alves et al. 2012). There is a correlation between improved healthy neural growth in the brains of breastfed children (Deoni et al. 2013). Other studies have demonstrated a positive association with breastfeeding and improved mental development in children (Belfort et al. 2013; Guxens et al. 2011) and with improved cognitive, economic and social outcomes into adulthood (Victora et al. 2015).

Although breastfeeding is usually promoted as an infant health issue, there is little doubt that there are health benefits for women too. For women who have a history of breastfeeding, scientific studies have demonstrated a lower incidence of premenopausal breast cancer (Stuebe et al. 2009) and ovarian cancer (Jordan et al. 2010) and an improvement in bone density, which could reduce the incidence of hip fractures in later life (Chantry et al. 2004). The risk of rheumatoid arthritis (Pikwer et al. 2008) and developing type 2 diabetes (Liu et al. 2010) all appear to be less in women who have breastfed.

Despite the evidence that breastfeeding is a health-enhancing activity, breastfeeding rates in the United Kingdom are disappointing. The Infant Feeding Surveys have been conducted every 5 years since 1975. These surveys provide valuable data about the incidence, prevalence and duration of breastfeeding in the United Kingdom. The most recent (2010) showed the incidence of breastfeeding at birth had risen to 81% (McAndrew et al. 2012) from 76% in the last survey in 2005 (Bolling et al. 2007). This appears to be an encouraging figure until one analyses the prevalence of breastfeeding, where the rate falls to 69% at 1 week after birth, 55% at 6 weeks and 34% by the time the baby is 6 months old (McAndrew et al. 2012). So the question that needs to be asked is this: if breastfeeding is so good for the infant and the mother, why do more women not do it?

If it is accepted that most women are able to lactate and understand the health benefits of breastfeeding, it is essential to look at those forces that affect the everyday life of breastfeeding women in the United Kingdom and consider what makes them decide to breastfeed initially and what makes them give up or continue. However, before considering the contemporary life of women in the United Kingdom, it is useful to discuss the historical context of infant feeding, which has affected modern practices.

Historical influences

It is useful to consider breastfeeding within a historical context in order to understand the prevailing attitudes towards infant feeding. Giving an infant nourishment other than their mother's milk is not a new phenomenon. Throughout world history there are accounts of infants being given breast milk from other women (wet-nursing) or milk from animals (Fildes 1986, 1988). Between 1500 and 1900 the use of wet nurses in England was commonplace, especially among the wealthy. Although it later became uncommon in England, some industrialised nations (e.g. Austria, Italy and the United States) were using wet-nursing

as an alternative to maternal breastfeeding until at least the 1940s (Fildes 1988). Historical records suggest that infants were commonly given foodstuffs such as bread and broth as a complement to or substitute for breast milk (Apple 1987; Fildes 1986). Artificially formulated milk from animals became widely available in Europe, Australia and the Americas during the late 1800s, when the scientific community became interested in the subject of infant nutrition (Apple 1987; Latteier 1998). During World War II, national dried milk was introduced to encourage women into the workplace, and following the war the infant formula industry became very competitive, with intense marketing strategies equating bottle-feeding with affluence and consumerism. The marketing of artificial formula milk has received considerable attention as a major cause of the global decline in breastfeeding (Palmer 2009; World Health Organization [WHO]/UNICEF 2007). Human lactation as an unreliable body function became a cultural truth that has persisted to the present day (Wolf 2000).

The 'bottle-feeding culture' became a part of the medicalisation of infant feeding, where scientists and doctors became the 'experts'; various practices were introduced to control and regulate infant feeding, whereby predictability and measuring the baby's intake became important (Murphy 2003). As women were encouraged to approach the management of breastfeeding from a scientific paradigm, this caused a lack of confidence in their ability to nourish their babies, and this lack of confidence in breastfeeding persists in the United Kingdom today (Dykes 2006; Thomson et al. 2015). Despite the known health benefits of breastfeeding, prejudicial attitudes against breastfeeding still remain. Many of the people with whom a woman comes into contact during her reproductive life have been exposed to the 'norm' of bottle-feeding, and it is clear that the social milieu is a major influence on women's willingness to breastfeed.

The social experience of breastfeeding

The breastfeeding experience is not an isolated event but one that exists in a social context. Not only does a woman have to choose whether she will initially breastfeed her infant, but she may also need to consider the length of time for which she will do so, how she will incorporate breastfeeding into her everyday life, where she will breastfeed, in whose company she feels comfortable doing it, whether she will breastfeed during the weaning process and whose advice and opinions will guide her (e.g. family, friends and/or health professionals). These decisions are likely to be shaped by political, economic, social and cultural influences.

The World Health Organization recommends that whenever possible infants should be fed exclusively on breast milk until 6 months of age (WHO 2011). In the United Kingdom the public health message is that 'breast is best' and government guidelines support the WHO recommendation (Department of Health 2010). Economic pressures to work during the breastfeeding period might raise issues about access to a breastfeeding child in the workplace and the acceptability of breastfeeding or expressing the breasts during work time (ACAS 2014; Gatrell 2007). Social and cultural factors will determine the norms of behaviour with regard to breastfeeding – that is, what is tolerated, what is not, and how behaviour might be regulated.

In many societies in the world, breastfeeding is reported to commonly continue into toddlerhood (Dettwyler 1995a; WHO/UNICEF 2015). This does not mean that these women are exclusively breastfeeding 2- or 3-year-old children, but they continue to provide breast contact in some form along with other foodstuffs. This practice is not confined to 'other' societies, it also occurs in the United Kingdom (Britton 2000; Sinnott 2010). It is difficult to determine the extent of long-term breastfeeding in the United Kingdom because

(e.g. Bryers and van Teijlingen 2010; Davis-Floyd 2003; Reiger and Dempsey 2006; Einion 2017), where childbirth has been defined as a 'problem' that needs to be controlled by experts and monitored by technology. Turner (2008) suggests that medicine, law and religion are pre-occupied by the regulation of the body. In the United Kingdom there has been debate about protecting breastfeeding practices by law. Scotland was the first country in the United Kingdom to pass a law allowing women the right to breastfeed in public (Scottish Parliament 2005). The introduction of the Equality Act (2010) made it illegal to stop mothers breastfeeding their babies in public places across the United Kingdom. In the United States there have been legal cases involving breastfeeding, such as the effect of breastfeeding on custody and visitation rights (Hawley 2013), the right to breastfeed at work (Yarrow 2014) and breastfeeding in public places (Grossman 2012). Consequently, legislation in many states of the United States has been developed in order to promote and encourage breastfeeding (NCSL 2015).

In UK society, individuals learn from an early age that the body needs to be managed and disciplined (Shilling 2003). Drawing on the work of Elias (2000), the body has been subjected to the *civilising process*. During the course of socialisation most natural functions have been classified as offensive and distasteful. Body fluids fit into this category very well; the sight or smell of body fluids such as urine, faeces or menstrual blood may be considered 'matter out of place' (Douglas 2003). People expect to be in charge of their bodies, so if the body goes out of control it can be viewed as problematic – not only for others but by the self as well (Isaksen 2002). Women have been socialised to control their bodily fluids and render them invisible (Bramwell 2001; Schmied and Lupton 2001). For example, during breastfeeding the leaking milk is contained by the use of breast pads. The control of decency may also be an issue when the breasts become 'public' during breastfeeding. However, concern about the public display of the breast during breastfeeding seems to be in direct contradiction to the media representation of breasts in the popular press.

Societal notions of the breast and breastfeeding

Societal notions of the breast and breastfeeding in the United Kingdom are embedded in a cultural context that shapes people's opinions about the breast and attitudes towards breastfeeding activities. The visual and print media in any culture depict the 'desirable' female body in terms of the appropriate shape and size of the breast (Wykes and Gunter 2005). Women who are dissatisfied with their breasts seek assistance from surgeons with regard to reconstructive surgery to enable them to achieve the desired shape and size of breast. The breast may also be perceived as an erotic body part, to be represented both in pornography and in the media as an essential feature for attracting the male gaze.

In contemporary Western societies, such as the United Kingdom and North America, there is a strong association of the breast with sexual attractiveness (Detwyler 1995b; Grogan 2008). The sexualisation of the breast in the United Kingdom means that breastfeeding is ultimately linked with female sexuality, and this might be an important factor influencing a woman's success in breastfeeding (Dyson et al. 2010; Smyth 2008). There are many accounts of women avoiding breastfeeding as they believe it will negatively affect the size and shape of their breasts (Brown et al. 2011; Earle 2002). Women may find sexual relations problematic when the breasts are tender, full of milk and leaking during intimacy. Several studies have demonstrated the influence of the male partner on a woman's decision to initiate and continue breastfeeding (Bartlett 2005; Rempel and Rempel 2004). There is no doubt that many men are supportive of breastfeeding and see this as providing the optimal beginning for the newborn. However, some women cite the lack of support from partners and

the sexualisation of their breasts as a barrier to continuation (Bartlett 2005). Conversely, the encouragement of partners to be involved with shared parenting might encourage the cessation of breastfeeding in favour for formula milk-feeding.

The media have the ability to influence public opinion, and women are acutely aware of the media's interest in aspects of breastfeeding (Britton 2000; Brown and Peuchard 2008; Foss 2013). The sexualisation of the breast through media images has become commonplace in UK society, with various newspapers, magazines and television programmes portraying the female breast as sexual. In the United Kingdom there is a strong cultural preference for sexualised breasts. When women breastfeed they may be seen as transgressing the boundary between motherhood and sexuality (Campo 2010; Morrison and Wambaçh 2016). The media can also influence attitudes to breastfeeding, where it might be portrayed as a less favourable activity than bottle-feeding, and positive images of bottle-feeding decrease rates of breastfeeding (Foss and Southwell 2006; Henderson et al. 2000). The media's interest in the subject often focuses on problems associated with breastfeeding in the social world. For years there have been regular reports in popular magazines and newspapers encouraging the public debate of topics such as whether women should breastfeed in public or the merits of breastfeeding older children.

Breastfeeding in everyday life: The public dimension

In everyday life a breastfeeding woman will breastfeed on someone's territory, whether it be a public place or in her own domestic space. In many societies breastfeeding in public is not an issue – the act is incorporated into everyday life without question. In the United Kingdom, breastfeeding in public has become a topic of debate. In recent years there has been plethora of newspaper and media articles questioning its appropriateness (Table 20.1). The very fact that it has become an issue for public debate indicates that it is a problematic activity for society in general. Some women in the United Kingdom find it difficult to breastfeed in public places (Boyer 2011; Britton 2000; McAndrew et al. 2012), and their concerns are reinforced when the media highlight their plight.

If women feel concerned about incorporating breastfeeding into their social life, they might cease breastfeeding altogether, avoid doing it in public or quickly develop an awareness of appropriate facilities, such as mother-and-baby rooms, which are regarded as areas of 'safe refuge'. Mother-and-baby facilities can offer women a place that is frequented by other women with children, which provides privacy away from the public gaze and where their mothering capabilities are not on public display. However, the environment within such mother-and-baby rooms is not always ideal. Often the space is cramped, and chairs for breastfeeding may be placed next to nappy bins. If mother-and-baby facilities are not available, then women might find other 'safe' areas in which to breastfeed, such as restaurants and cafes, or they might negotiate an area with shop assistants. However, they may go to some

Table 20.1 Examples of Media Articles Related to Breastfeeding in Public

'Mother labelled a "tramp" for breastfeeding in public.' (BBC News 2014a)
'Third of women feel embarrassed breastfeeding in public, survey finds.' (Siddique 2015)
'Breastfeeding in public "still frowned upon": Mothers made to feel "marginalized and ashamed", study finds.' (Yapp 2014)
'Claridge's breastfeeding row: Protest by mothers.' (BBC News 2014b)
'BBC under fire over "moustached women" breastfeeding jibes.' (Furness 2015)

length to create a safe space within these settings by placing themselves away from others in order to avoid the public gaze. When seeking a safe, private area in which to breastfeed their baby, a public toilet might be the only readily available place, which women loathe, as they equate breastfeeding with nourishment rather than with excretion (Britton 2000). Although safe refuges are welcomed by most women, their presence can reinforce the social concerns about breastfeeding in public by reducing it to a clandestine activity.

In the early weeks of motherhood, women may express anxiety about going away from the home, because they will have to manage and regulate their baby in a social setting among strangers. First-time mothers in particular are conscious of their new role and have differing degrees of confidence in handling and managing a young baby. For some women, the public display of mothering is an anxious time if they believe that others might monitor their skills. The act of breastfeeding might be regarded as a public demonstration of how the woman copes with her baby and attends to its needs appropriately.

Breastfeeding in everyday life: The domestic dimension

The home is usually regarded as a safe, private place in which breastfeeding can take place. However, the presence of others within this space may impose a reordering of the place to breastfeed. Those women who would normally breastfeed in a 'day' area, such as a living room, may retreat to a more private area, such as a bedroom, rather than breastfeed in the view of others in their domestic space.

In the domestic setting, public and private demarcations of space may change according to whether the woman is breastfeeding in front of friends and family. She may manage breastfeeding on her own, with her partner present or in front of friends and family in different ways, depending on how comfortable she feels in front of these individuals (McAndrew et al. 2012). The domestic space may usually be regarded as a private space in which a breastfeeding woman can choose where to feed her child. However, this may become disrupted when the domestic arena becomes public (e.g. when guests are invited into the home). A demarcation of public and private space might occur, with the woman removing herself to a private space should breastfeeding be necessary. What is interesting here is that for some breastfeeding women their domestic space has different meanings depending on who is present. Factors that influence the woman's choice of feeding venue include her relationship to the guest, the sex of the guest and her partner's view on breastfeeding in front of 'others'. The woman's personal preferences also have to be considered, as well as those of the individuals who were invited into the home, and consequently a re-evaluation of the use of private and public domestic space may occur.

Conclusion

Scientific research can improve our understanding of the biological benefits of breastfeeding and influence the development of strategies to increase the number of women who initiate breastfeeding. However, the social context of breastfeeding must be considered in order to gain an improved understanding of the conflicts and dominant forces that shape breastfeeding for many women.

The reasons why some women do not breastfeed at all, or only breastfeed for a limited time, are multiple and complex. The dominant societal and cultural influences will affect a woman's decision about whether to initiate and sustain breastfeeding. By examining these forces, health professionals can identify how they may better support women who choose to breastfeed and appreciate the constraints to breastfeeding that women might encounter.

In the United Kingdom, the medical/scientific approach to breastfeeding in policy discourse is dominant, and little attention is given to the social and cultural values that underlie a woman's reasons for breastfeeding. Nevertheless, there is evidence that without an understanding of cultural attitudes the medical message is often unable to permeate the wider audience. Despite women's knowledge that it can be health enhancing, some choose not to breastfeed. In order to promote breastfeeding, health professionals have used the dominant discourse of medicine to encourage an increase in the number of women who breastfeed. The strategies that they use are the provision of information about the health benefits and the use of scientific research to underpin advice about the appropriate management of breastfeeding concerns. However, this is not enough; it is essential to acknowledge the cultural and social influences that might help or hinder the act of breastfeeding.

Key points

- Lactation is universal, but the act of breastfeeding is socially constructed.
- Breastfeeding does not take place as an isolated event but is influenced by the social world of the woman.
- Political, economic, social and cultural influences may shape breastfeeding decisions.

Useful addresses

The Breastfeeding Network

PO Box 11126
Paisley PA2 8YB
Tel.: 08444 120 995
Website: www.breastfeedingnetwork.org.uk

La Leche League (GB)

129a Middleton Boulevard
Wollaton Park
Nottingham NG8 1FW
Tel.: 0845 120 2918
Website: www.laleche.org.uk

National Childbirth Trust

Alexandra House
Oldham Terrace
Acton
London W3 6NH
Tel.: 0300 330 0770
Website: www.nct.org.uk/home

Baby Milk Action

34 Trumpington Street
Cambridge CB2 1QY
Tel.: 01223 464420
Website: www.babymilkaction.org

UNICEF UK Baby Friendly Initiative

30a Great Sutton Street
London EC1 0DU
Tel.: 020 7375 6052
Website: www.babyfriendly.org.uk

Fatherhood Institute

1 Warren Courtyard
Savernake
Marlborough
Wiltshire SN8 3UU
Tel.: 0845 634 1328
Website: www.fatherhoodinstitute.org

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Information regarding chosen literature: ICM International Code of Ethics for Midwives.

This is a core ICM documents regarding ethics for midwives on an international scale. We have chosen to present this document to you, as it is an example of the literature we introduce and teach our students at the Danish midwifery education. You will work in groups and analyse this document during the session regarding Human rights, ethics and Obstetric Violence.



Core Document

International Code of Ethics for Midwives

Preamble

The aim of the International Confederation of Midwives (ICM) is to improve the standard of care provided to women, babies and families throughout the world through the development, education and appropriate utilization of the professional midwife. In keeping with this aim, the ICM sets forth the following code to guide the education, practice and research of the midwife. This code acknowledges women as persons with human rights, seeks justice for all people and equity in access to health care, and is based on mutual relationships of respect, trust and the dignity of all members of society.

The code addresses the midwife's ethical mandates in keeping with the Mission, the International definition of the Midwife, and standards of ICM to promote the health and well-being of women and newborns within their families and communities. Such care may encompass the reproductive life cycle of the woman from the pre-pregnancy stage right through to the menopause and to the end of life. These mandates include how midwives relate to others; how they practise midwifery; how they uphold professional responsibilities and duties; and how they are to work to assure the integrity of the profession of midwifery.

The Code

- I. *Midwifery Relationships*
 - a. Midwives develop a partnership with individual women in which they share relevant information that leads to informed decision-making, consent to an evolving plan of care, and acceptance of responsibility for the outcomes of their choices.
 - b. Midwives support the right of women/families to participate actively in decisions about their care.
 - c. Midwives empower women/families to speak for themselves on issues affecting the health of women and families within their culture/society.
 - d. Midwives, together with women, work with policy and funding agencies to define women's needs for health services and to ensure that resources are fairly allocated considering priorities and availability.

-
- e. Midwives support and sustain each other in their professional roles, and actively nurture their own and others' sense of self-worth.
 - f. Midwives respectfully work with other health professionals, consulting and referring as necessary when the woman's need for care exceeds the competencies of the midwife.
 - g. Midwives recognise the human interdependence within their field of practice and actively seek to resolve inherent conflicts.
 - h. Midwives have responsibilities to themselves as persons of moral worth, including duties of moral self-respect and the preservation of integrity.

II. *Practice of Midwifery*

- a. Midwives provide care for women and childbearing families with respect for cultural diversity while also working to eliminate harmful practices within those same cultures.
- b. Midwives encourage the minimum expectation that no woman or girl should be harmed by conception or childbearing.
- c. Midwives use up-to-date, evidence-based professional knowledge to maintain competence in safe midwifery practices in all environments and cultures.
- d. Midwives respond to the psychological, physical, emotional and spiritual needs of women seeking health care, whatever their circumstances (non-discrimination).
- e. Midwives act as effective role models of health promotion for women throughout their life cycle, for families and for other health professionals.
- f. Midwives actively seek personal, intellectual and professional growth throughout their midwifery career, integrating this growth into their practice.

III. *The Professional Responsibilities of Midwives*

- a. Midwives hold in confidence client information in order to protect the right to privacy, and use judgment in sharing this information except when mandated by law.
- b. Midwives are responsible for their decisions and actions, and are accountable for the related outcomes in their care of women.
- c. Midwives may decide not to participate in activities for which they hold deep moral opposition; however, the emphasis on individual conscience should not deprive women of essential health services.

-
- d. Midwives with conscientious objection to a given service request will refer the woman to another provider where such a service can be provided.
 - e. Midwives understand the adverse consequences that ethical and human rights violations have on the health of women and infants, and will work to eliminate these violations.
 - f. Midwives participate in the development and implementation of health policies that promote the health of all women and childbearing families.

IV. *Advancement of Midwifery Knowledge and Practice*

- a. Midwives ensure that the advancement of midwifery knowledge is based on activities that protect the rights of women as persons.
- b. Midwives develop and share midwifery knowledge through a variety of processes, such as peer review and research.
- c. Midwives contribute to the formal education of midwifery students and ongoing education of midwives.

Adopted at Glasgow International Council meeting, 2008

Reviewed and adopted at Prague Council meeting, 2014

Due for next review 2020

Guidance for reading Macdonald & Johnson 2017, pp. 1091-1097:

In this chapter you must focus your reading on post-partum haemorrhage caused by lack of tone in the uterine muscle: what are the causes and risk factors; how can it be prevented; and how do we manage it.

King et al 2016:

this can be read as a supplement.

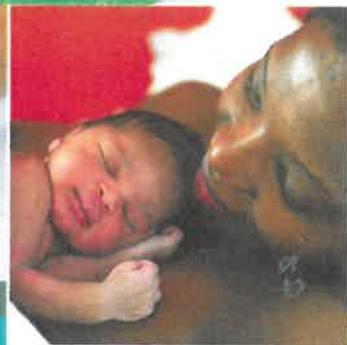
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Chapter 67



Complications related to the third stage of labour

Christina and Andrew Arnold

Learning Outcomes



After reading this chapter, you will be able to:

- understand why the period immediately after the birth of the baby may result in complications during and after the third stage of labour and what the implications are for women and their families
- recognize risk factors, signs and symptoms
- demonstrate evidence-based knowledge of the midwife's role in managing emergency situations in this period
- outline how the multidisciplinary team can further treat and manage emergency situations as necessary

INTRODUCTION

Although the third stage of labour is usually uneventful, significant complications may occur because of the rapid change in physiology at this time. These complications and the related risks may continue for some period after delivery of the placenta. The most common complication associated with the third stage of labour is postpartum haemorrhage (PPH). This chapter will essentially examine PPH and other complications related to the third stage of labour. Further complications occurring immediately after childbirth, which may not necessarily be related to the third stage, are also discussed in this chapter.

POSTPARTUM HAEMORRHAGE

A postpartum haemorrhage (PPH) is a common emergency, which may happen swiftly and without warning.

For the majority of births, the midwife is likely to be the only healthcare professional in attendance and, therefore, it is essential that they have a thorough understanding of the complication. A midwife's prompt recognition and action may spare the woman dangerous blood loss and save her life.

Obstetric haemorrhage, which includes abnormal bleeding in the antepartum, intrapartum and postpartum period, is a significant cause of maternal mortality and morbidity. Worldwide, it is the leading cause of maternal mortality, attributing to 27% of maternal deaths with some regions in Northern Africa and Asia reporting figures above 50% (Say et al 2014). Primary PPH, the most common type of obstetric haemorrhage, accounts for two-thirds of these numbers. The incidence is notably lower in higher income countries. In the UK, haemorrhage is the third leading cause of direct maternal death. Paterson-Brown and Bamber (on behalf of the MBRRACE-UK haemorrhage writing group 2014) reported that between 2009 and 2012, there were 14 deaths attributed to PPH.

Although the incidence of PPH varies widely and depends on the definitions used, there appears to be a rising trend in the occurrence (Knight et al 2009; Lutomski et al 2012; Kramer et al 2013). In England, the incidence has risen from 7% to 13% in the past decade (Health and Social Care Information Centre 2015).

In high income countries, many maternal deaths from haemorrhage are associated with substandard care (Paterson-Brown and Bamber 2014). Following recommendations from Confidential Enquiry (Centre for Maternal and Child Enquiries 2011) reports and Royal College of Obstetric and Gynaecology (RCOG 2009) guidelines, all maternity services now have a policy for managing haemorrhage and run regular skills drills and simulation training so that all members of the multidisciplinary team are able to work together effectively to improve the outcome for the women in their care.

Definition

PPH is defined as excessive bleeding from the genital tract occurring any time from the birth of the baby to the end of the puerperium.

- *Primary PPH* is when excessive bleeding occurs in the first 24 hours after the birth.
- *Secondary PPH* is when abnormal or excessive bleeding occurs between 24 hours and 12 weeks postnatally. It is a significant contributor of maternal death in developing countries and affects approximately 2% of births in developed countries (Alexander et al 2009; Dossou et al 2015). Most studies report peak incidence at 1 to 2 weeks after the birth (Dossou et al 2015). The most common cause is subinvolution of the uterus, secondary to retained products and/or infection.

Primary PPH

Primary PPH is often defined by using the estimated blood loss (EBL) and, traditionally, a loss of 500 mL or more has been regarded as a PPH (WHO 1990). For women undergoing a caesarean section, a PPH is defined as a blood loss greater than 1000 mL (Mukherjee and Arulkumar 2009). Yet this amount may also be considered as a normal physiological blood loss in women who are healthy. However, for women who are anaemic or who have a low body mass index, this amount or less may cause severe compromise (Moore and Chandraran 2010).

Using the EBL to define PPH is notoriously difficult. In addition to the varying clinical impact the blood loss may have on individual women, it is also likely to be inaccurate (Bose et al 2006; Lilley et al 2015), incorrectly recorded (Briley et al 2014) or it may be concealed.

With consideration of the variables in estimating blood loss, the RCOG (2009) guidelines advocate that when estimating blood loss to define PPH – if blood loss is estimated as 500 mL to 1000 mL and there are no clinical signs of maternal compromise – staff should be alerted to monitor the woman and be ready for possible action. This is categorized as a minor PPH and certain fundamental measures need to be undertaken. Should the EBL be above 1000 mL or the woman shows any sign of compromise no matter what the blood loss is, it is categorized as a major PPH and a full protocol of measures must be initiated and prompt action taken to resuscitate and arrest bleeding.

A major PPH can be further subdivided into moderate (1000–2000 mL of blood loss) and severe (over 2000 mL of blood loss).

Causes

PPH may arise from the placental site or from a genital tract laceration, and usually falls into four categories commonly known as the '4 Ts' (see Table 67.1).

Table 67.1 Causes of PPH – the 4 'Ts'

<i>Tone</i>	Uterine atony: Excessive bleeding from the placental site when the uterus fails to contract and retract adequately. As there is a placental circulation of 500 to 600 mL/min at term (Blackburn 2013), if uterine arteries are not ligated by the muscle fibres surrounding them, blood loss can be rapid and dangerous. 70% to 90% of PPH cases are from uterine atony (Winter et al 2012).
<i>Tissue</i>	Any tissue that hinders uterine contraction (as above): retained or adherent placenta, placental/membrane fragments and blood clots.
<i>Trauma</i>	Genital tract lacerations, episiotomy, haematomas, ruptured or inverted uterus.
<i>Thrombin</i>	Blood coagulation disorders: These include pre-existing disorders, e.g. von Willebrand's syndrome, disseminated intravascular coagulopathy, HELLP syndrome and anticoagulant therapy.

Risk factors

The risk factors are listed in this section. However, midwives must note that PPH can occur in women who have no identifiable risks:

- Previous PPH or retained placenta.
- Multiple pregnancy, polyhydramnios and fetal macrosomia: All may cause uterine over-distension, leading to poor retraction. In multiple pregnancy, there is a larger placental site, which is more likely to encroach upon the poorly retractile lower uterine segment, thus increasing the risk of haemorrhage.
- Anaemia affects the ability to withstand haemorrhage.
- Antepartum haemorrhage from placenta praevia, placental abruption or any unclassified antepartum bleeding may subsequently result in PPH. With placenta praevia, the retractile ability of the lower uterine segment is deficient and, therefore, control of bleeding from the placental site is poor. A Couvelaire uterus may occur in severe, concealed placental abruption and the damaged muscle fibres fail to contract and retract effectively (Fig. 67.1). Women who have had an antepartum haemorrhage may also be anaemic, increasing the threat from PPH.
- Prolonged labour: If contractions were weak or uncoordinated during labour, it may continue into the third stage. The uterus will fail to contract and

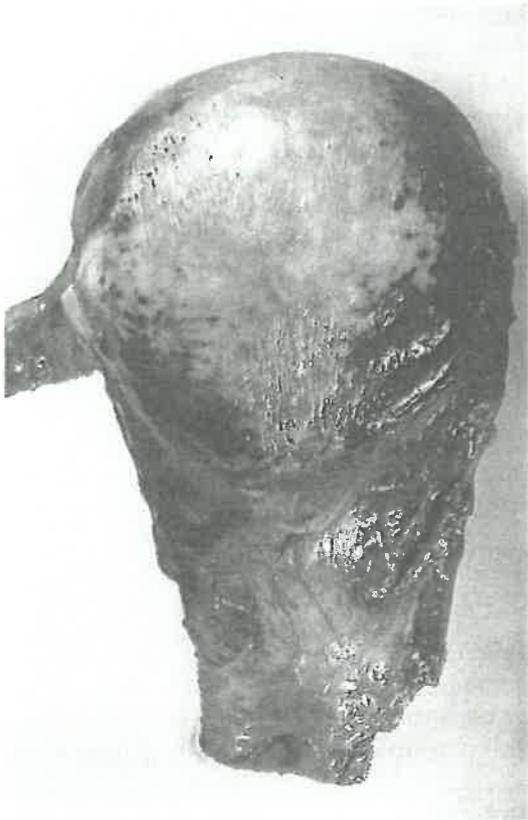


Figure 67.1 Couvelaire uterus. (This article was published in Beischer N, Mackay E, and Colditz P: *Obstetrics and the newborn*, London, Baillière Tindall, London, Copyright Elsevier, 1997)

retract effectively. Occasionally, prolonged labour, because of mechanical difficulty, may lead to uterine exhaustion and atony.

- Previous caesarean section and caesarean section: Surgery and scarring of the uterus is a risk factor for placenta praevia and accrete – see further details discussed later in this chapter.
- Pre-eclampsia/hypertensive disease in pregnancy: Both increase the risk of induction and operative deliveries. Coagulopathy is also a potential complication of hypertensive disease. Some drugs used to prevent seizures may contribute to uterine atony.
- General anaesthesia: Uterine atony may occur if anaesthesia is prolonged, and is especially likely if halogenated anaesthetic agents are used.
- Fibroids: Interfere with efficient contraction and retraction.
- Mismanagement of the third stage of labour: Unnecessary massaging, squeezing or otherwise 'fiddling' with the uterus can disrupt the rhythm of myometrial activity, causing only partial separation of the placenta.
- Retained placenta and blood clots: Unless the uterus is empty, it cannot retract completely.

- Tocolytic drugs: Drugs given to suppress uterine activity in preterm labour may cause atony in the third stage should labour progress.
- Induced or augmented labours: Uterine inefficiency necessitating the use of oxytocics may contribute to PPH.
- Inversion of the uterus: Any degree of uterine inversion will interfere with efficient contraction and retraction.
- Chorioamnionitis: This will impair uterine contraction. Chorioamnionitis will impair contractions during labour causing the labour to become prolonged, further exacerbating the risk of PPH.
- Disseminated intravascular coagulation may occur secondarily to other major problems (discussed later in this chapter).
- Medical disorders such as idiopathic thrombocytopenia and inherited coagulopathies increase the risk of PPH.

Prevention

During pregnancy

Preventing PPH begins at the initial 'booking' interview when midwives will identify women at higher risk. Any woman whose history suggests that she is at risk should be booked for a hospital birth where immediate and effective treatment can be provided. Conditions such as anaemia should be treated with iron and folic acid supplements. In severe cases, intramuscular iron or even blood transfusion may be required to raise the haemoglobin levels prior to delivery (RCOG 2015).

For women who are expecting to undergo an elective caesarean section and who are at increased risk of haemorrhage or who refuse blood products, intraoperative blood cell salvage should be offered (RCOG 2015).

Labour

During labour, careful management may reduce the likelihood of PPH and some precautions can minimize the severity of the bleed.

For women at risk:

- Insert a wide bore intravenous cannula (16G or larger)
- Take blood samples to establish haemoglobin levels and have blood group confirmed.
- Ensure the serum is saved, thereby speeding up the process of cross-matching donor blood, should it become necessary.
- Monitor the progress of labour and avoid dehydration, ketoacidosis and exhaustion.
- Prompt referral to an obstetrician if there are signs of prolonged labour.

- An oxytocin infusion may be required and should be maintained for at least 1 hour after the end of the third stage.
- The bladder should be kept empty, as a full bladder may impede efficient uterine action.

Third stage

Correct management is essential. The midwife should discuss the management of the third stage with the woman, preferably before labour commences. An actively managed third stage with routine prophylactic administration of oxytocics (Begley et al 2011) (see also Ch. 39) and controlled cord traction will reduce the frequency and severity of PPH (WHO 2012). Once the placenta is delivered, the uterus must be palpated to ensure that it is well contracted. If the uterus is atonic, fundal massage (rubbing up a contraction) should be commenced by using one hand to cup the fundus and firmly massage in a rotational movement until the uterus starts to become firm (Crafter 2016) (see Fig. 67.2). Breastfeeding or nipple stimulation may also help the uterus to contract but it is not an effective treatment for PPH.

Accurate estimation of blood loss

There is still significant emphasis on the assessment of blood loss volume. Many methods to estimate blood loss

have been used: visual estimation, weighing of swabs and incontinent sheets and the use of drapes to collect blood loss. Blood loss is usually underestimated (Bose et al 2006; Al-Kadri et al 2014), although recently there are reports of overestimation as well (Lilley et al 2015). The trend is that the more the blood loss, the greater the inaccuracy. Regular clinical simulations and education may improve blood loss estimation (Al-Kadri et al 2014).

Inaccurate detection of blood loss volume may delay treatment of a PPH; therefore, even though estimating blood loss volume remains an important tool for diagnosing PPH, practitioners should be placing more emphasis on clinical decisions based on the woman's risk, rate of blood flow and observations (Weeks 2015). This will enable early detection and prompt treatment.

Managing PPH

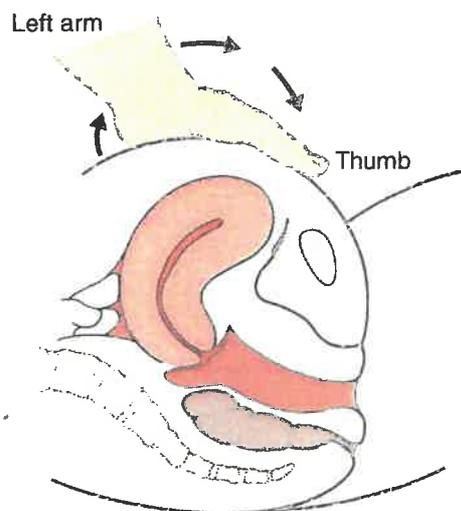
The principles of management

A multidisciplinary approach is essential at every stage of management. It must be noted that maternity units vary in the management of PPH, especially with pharmacological protocols. Midwives should follow their hospital guidelines as appropriate. Management of bleeding before the delivery of the placenta, minor PPH and major PPH will be examined separately.

Bleeding before the delivery of the placenta

Before the delivery of the placenta, there may be excessive bleeding from the placental site when the placenta is partially detached or wholly detached but undelivered. The bleeding should alert the midwife to take action. Skilled medical assistance should be summoned immediately, while the midwife must remain with the woman for support and to commence treatment. The placenta must be delivered as soon as possible and, if at home, the midwife should do this, if possible, before transferring the woman to hospital.

If the woman has not received an oxytocic drug for the third stage, this now should be administered. This drug is usually oxytocin 5 to 10 IU by intramuscular injection, causing the uterus to contract within 2.5 minutes. The



The left hand is cupped over the uterus (P) and massages it with a firm circular motion in a clockwise direction

Figure 67.2 'Rubbing up' a contraction. The left hand is cupped over the uterus and massages it with a firm circular motion in a clockwise direction. (Boyle M: Emergencies around childbirth: a handbook for midwives, Oxford, Radcliffe Publishing, 2002. Reproduced with permission of Radcliffe Publishers.)

Box 67.1 The principles of management

- Communication and escalation
- Resuscitation of the mother
- Arrest the bleeding
- Fluid replacement
- Monitoring and investigation
- Documentation

placenta is then delivered by controlled cord traction. If the uterus remains soft, a further dose may be given. If Syntometrine (oxytocin 5 IU and ergometrine 500 µg/1 mL) was given for third stage management, the placenta needs to be delivered before the ergometrine takes effect, as this may cause the placenta to become trapped (Belfort and Dildy 2011) and exacerbate the bleeding. Fundal stimulation must be avoided, as this too can lead to placental entrapment.

The bladder should be empty before another attempt is made to deliver the placenta with controlled cord traction. Once the placenta is delivered, an intravenous Syntocinon infusion is recommended and the genital tract should be inspected to exclude traumatic haemorrhage (discussed later in this chapter).

If the placenta cannot be delivered, prepare for the obstetrician to perform a manual removal of the placenta and membranes under anaesthetic. The midwife may also perform this procedure in an emergency situation (NMC 2012). Retained placenta is discussed later in this chapter.

Managing a minor PPH

The following actions should be taken when a minor PPH is diagnosed. The order in which the actions are to be taken may vary and, where possible, actions should be taken simultaneously:

- *Call for assistance:* Alert the senior midwife, obstetrician and anaesthetist. Ask for a second midwife to help in the room if in the maternity unit, or ask for a second midwife to come to the home immediately to assist while waiting for the emergency services to arrive. Do not leave the woman alone.
- *'Rub up' a contraction:* This must be done as soon as possible. Massaging the uterus will usually stimulate a contraction and expel any blood clots (Fig. 67.2).
- *Gain intravenous access:* Insert 2 wide-bore cannulas. This is to obtain blood samples, administer drugs and commence fluid replacement with a crystalloid infusion.
- *Establish the cause* (Paterson-Brown and Howell 2014):
 - Check that the uterus is well contracted.
 - Ensure placenta has been delivered and that it is complete.
 - Examine the cervix, vagina and external genitalia for lacerations. If found, pressure should be applied and suturing performed.
 - Observe for signs of clotting disorders, such as abnormal clotting of blood or oozing from wounds and cannula sites. Review notes to establish if there is a history of coagulation disorders or predisposing factors.

- *Give first-line oxytocic drug for uterine atony:* Drug protocols vary, but the following may be considered:
 - Intramuscular Syntometrine (oxytocin 5 IU and ergometrine 500 µg/1 mL) if it has not already been given for the management of the third stage. May be repeated after 2 to 4 hours (Belfort and Dildy 2011).
 - If an oxytocic has been given, a second dose of oxytocin 5 to 10 IU may be given by intramuscular injection or 5 IU slow intravenous injection. Caution is needed with bolus doses of oxytocics, as they may exacerbate maternal hypotension.
 - This may be followed by ergometrine 250 to 500 µg. Ergometrine may be given intramuscularly or, cautiously, intravenously in the absence of hypertension (Joint Formulary Committee 2015).
- An intravenous infusion of 40 IU of oxytocin in 500 mL of normal saline over 4 hours should be commenced. This is to maintain the tone of the uterus.
- *Ensure the bladder is empty* by passing an indwelling catheter, as a full bladder can impede uterine contraction and retraction.
- *Assessment of maternal condition:* Respirations, pulse, blood pressure and oxygen saturations should be undertaken every 15 minutes, and the temperature hourly.
- *Estimating blood loss* can be done by observation and weighing of swabs and incontinence pads. Do not dispose of these until the woman's condition is stabilized.

It is essential that these steps are taken as soon as the midwife suspects that the uterus is failing to contract, the woman is showing signs of compromise or if bleeding is unusually heavy. In most cases these are effective if used in good time. Delay will result in further blood loss and the woman's condition will deteriorate rapidly in which case a full emergency protocol must be initiated.

If the placenta and membranes are not complete, an exploration and evacuation of the uterus is carried out by an obstetrician under anaesthesia.

The midwife should ensure that her documentation is complete and that she has commenced a Modified Early Obstetric Warning Score (MEOWS) and fluid balance chart. Clear and appropriate communication with the multidisciplinary team and the woman is essential at all times.

Reflective activity 67.1



Review how emergency transfer of a woman from her home to hospital is managed in your area.

Major obstetric haemorrhage

This is a life-threatening event that may take place in the antenatal, intrapartum or postnatal period, and is characterized by severe maternal compromise. The incidence is approximately 5.8 per 1000 maternities (Lennox and Marr 2014). Major PPH accounts for most cases of major obstetric haemorrhage, although the cause is often related to problems occurring in the antepartum and intrapartum period (Weeks 2015). It has been estimated that the incidence of major PPH is approximately 1.8 to 4.2 per 1000 births (Carroli et al 2008; Kramer et al 2013).

Managing a major PPH

A major PPH is a blood loss of 1000 mL or more, or any lesser amount that causes maternal compromise (RCOG 2009). In addition to the measures taken above for a minor PPH, as soon as the emergency is recognized, the following should be undertaken immediately and all actions should be taken simultaneously where possible:

- **Call for help:** Pull the emergency bell or dial '999' if at home. The full multidisciplinary protocol for managing massive obstetric haemorrhage must be initiated. The team should include the midwife who is caring for the woman plus other key staff including:
 - *Rub up a contraction:* Continue as described previously (see Fig. 67.2).
 - *Delegation of responsibilities:* One member of staff should take the lead. This may be the midwife, although once the multidisciplinary team is involved, it will usually be the anaesthetist or obstetrician. A scribe is needed to document all events, actions taken and treatment given.
 - *Maternal resuscitation:* Place the bed flat and assess the woman's airway, breathing and circulation. Oxygen therapy is to be commenced (10–15 L/min). Ensure the airway is kept patent, to allow adequate ventilation and lung expansion. Intubation may be necessary. Look for signs of cyanosis.
- **Intravenous access:** If not already done, two large-bore cannulas (14 g or follow local guidelines) should be inserted.
- **Blood samples:** Full blood count, cross-matching and clotting studies (4–6 cross-matched units of blood must be requested). Some maternity units will request screening of urea and electrolytes.
- **Fluid replacement:** Two litres of crystalloid may initially be infused, as these are known as good short-term intravascular volume expanders (Schorn and Phillippi 2014). This may be followed by 1.5 litres of colloid if blood products are not available. Colloids are more efficient in expanding the intravascular volume (Paterson-Brown and Howell 2014). However, caution is needed, as there is controversy about the amount, timing and nature of clear fluids to be used, as large amounts can interfere with coagulation and, more rarely, colloids have been known to cause an anaphylactic reaction (Karri et al 2009). Fluids should be warmed to prevent hypothermia (RCOG 2009).
- **Blood transfusion:** Blood transfusion should be commenced as soon as possible when there is the need. All maternity units keep at least two units of emergency group O Rhesus-negative blood in the blood refrigerator. This may be used while awaiting cross-matched supplies. Blood should be passed through a warming device and a pressure bag should be used to ensure that it is infused as rapidly as possible. A filter should not be used because this will slow the infusion. Other blood products will be administered on instruction of the haematologist. These include fresh frozen plasma, platelets and cryoprecipitate.
- **Second-line drugs:** In addition to oxytocin and ergometrine (as described in the management of a minor PPH section), the following drugs may be considered (under doctor's instruction) if the uterus remains atonic:
 - Carboprost (Hemabate) 250 µg may be administered by deep intramuscular injection and can be repeated every 15 minutes, up to eight doses (Joint Formulary Committee 2015). It also may be injected directly into the myometrium by the obstetrician but must not be given intravenously.
 - Misoprostol (1000 mcg) may be given rectally as a one-off dose.
- **Bimanual compression of the uterus:** To be undertaken if the measures mentioned previously do not stop the bleeding. (Fig. 67.3 and Box 67.3). Aortic compression also may be carried out. See the next section for technique for these procedures (Fig. 67.4 and Box 67.4).

Box 67.2 Call for help

- Senior midwife (and midwife in charge)
- Senior obstetrician (and consultant obstetrician)
- Senior anaesthetist
- Additional support staff
- Haematologist, blood bank and theatre staff are to be alerted
- Porter staff should be ready to transfer of specimens for laboratory analysis.

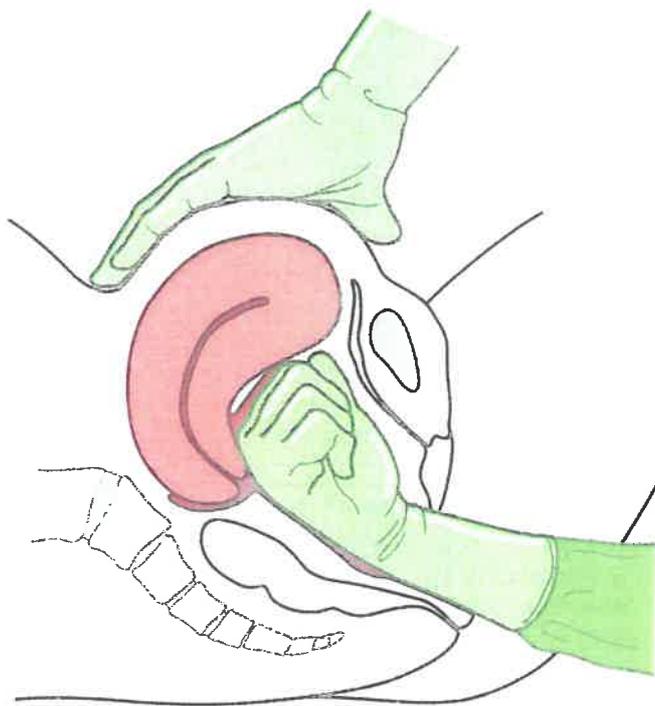


Figure 67.3 Internal bimanual compression of the uterus.

Box 67.3 Internal bimanual compression

- Using cone shaped fingers insert one hand gently into the anterior fornix of the vagina.
 - Form a fist and apply pressure to the anterior wall of the uterus.
 - The external hand dips down behind the uterus and pulls it forwards towards the symphysis. The hands are pushed together, compressing the uterus and placental site.
 - Continue the pressure until the haemorrhage is under control.
 - This is a highly invasive and painful procedure and should be used with discretion.
 - The woman and her partner should be informed about what to expect prior to undertaking it. External bimanual compression may also be done by squeezing the uterus between the hands.
- *Ongoing assessment of maternal condition and blood loss:* Respirations, pulse, blood pressure and oxygen saturations should be monitored continuously and temperature should be taken every 15 minutes, as the woman is likely to become hypothermic; therefore, measures need to be taken to keep her warm.
 - *Hourly urine measurements:* a drainage bag with a urometer is to be attached to the indwelling catheter. This is to assess renal function.

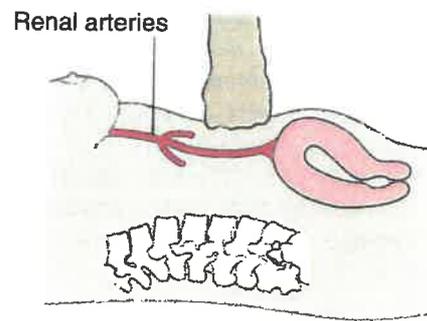


Figure 67.4 Abdominal aortic compression.

Box 67.4 Abdominal aortic compression

This has been used as a short-term emergency measure to control severe haemorrhage while awaiting emergency assistance. The midwife places a fist above the fundus and the umbilicus and pushes down to compress the aorta against the spine and reduce blood flow to the uterus. Adequacy of compression can be assessed by checking for the absence of femoral pulses (Winter et al 2012; Keogh and Tsokos 1997).

- *Prepare for early transfer to theatre.*
- *Documentation:* All observations must be accurately recorded on a MEOWS chart. This should alert staff to abnormal trends, prompting them to take immediate action. Alongside this, the fluid balance needs to be recorded. Clear contemporaneous records need to be made noting the staff in attendance, time and sequence of events, details of drug, blood and fluid administration and the condition of the mother. Most maternity units use a structured proforma to aid accurate record keeping. An incident form must also be completed.
- *Communication:* Ongoing communication with the multidisciplinary team and sensitive discussion and explanation of events with mother and partner at an appropriate time.

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PRACTICE, 4th ed.

ESTIMATION OF BLOOD LOSS

Begley et al (2015) suggest many women can tolerate a blood loss of 600–750 mL, which is equivalent to a routine blood donation but acknowledge the effect of blood loss will vary considerably depending on the woman's general health state, current haemoglobin value, coagulation status and the speed of loss. Estimating blood loss is notoriously inaccurate, with estimates usually lower than the actual amount of blood lost. Underestimating blood loss will artificially 'lower' PPH rates and estimates of measures taken to prevent PPH (Sloan et al 2010). Caroli et al (2008) found the prevalence of PPH was higher in studies that measured blood loss than those that estimated it. Sloan et al (2010) suggest the recommendation for using oxytocin as the uterotonic of choice for preventing PPH has been made from the body of studies that do not distinguish between visual and measured blood loss.

Gabel & Weeber (2012) suggest measuring haematocrit as haemoglobin levels immediately after severe haemorrhage is inaccurate and women are affected differently by blood loss. Many women who are in good health with good predelivery haemoglobin levels can tolerate a 750-mL loss with little or no effect (Begley et al 2015). McDonald et al (2013) agree, suggesting healthy women are able to tolerate a blood loss up to 1000 mL without being compromised.

As early as 1967, Brant demonstrated that although blood loss up to 300 mL was accurately assessed, blood loss in excess of this was generally underestimated. Generally, as the amount of blood loss increases, the underestimation increases (Al Kadri et al 2011, Bose et al 2006, Yoong et al 2010). Al Kadri et al (2011) and Toledo et al (2007) found underestimation of blood loss was not influenced by the background or level of seniority. Bose et al (2006) assessed obstetricians', anaesthetists', midwives', nurses' and healthcare assistants' ability to assess blood loss using sanitary pads, gauze swabs, kidney dishes, inco-pads, floor spills, and a bed soaked with different amounts of blood. Anaesthetists were most accurate in their assessment but tended to overestimate blood loss, whereas all the other categories of healthcare professional seriously underestimated blood loss. In particular, Bose et al (2006) found there was significant underestimation for large floor spillages, large gauze swabs and where blood loss was over the

bed and onto the floor. They developed guidelines to assist with the visual estimation of blood loss, which include looking at saturated gauze swabs (small 10×10 cm = 60 mL, medium 30×30 cm = 140 mL, large 45×45 cm = 350 mL), saturated sanitary pad (100 mL), floor spillages (50 cm diameter = 500 mL, 75 cm = 1000 mL, 100 cm = 1500 mL) and whether the bleeding with a PPH is restricted to the bed (unlikely to exceed 1000 mL) or spills over the bed and onto the floor (likely to exceed 1000 mL) (Bose et al 2006). Yoong et al (2010) found a tendency to overestimate small volumes of blood loss. Their participants were more accurate at 150–200 mL compared to 25 and 50 mL, suggesting that when women have frequent small losses of blood following birth, the overall accuracy of blood loss estimation will be reduced (Yoong et al 2010).

Accurate estimation of blood loss is important as it forewarns of impending haemorrhagic state (Bose et al 2006). This includes blood loss on disposable sheets and linen and collected within receivers during and after the third stage. It is important to retrieve as much blood from the sheets as possible into a container for measurement. Obvious blood loss can be measured in a jug, but when the blood has seeped onto the sheets, it becomes harder to estimate blood loss; thus these should be weighed for greater accuracy. Toledo et al (2007) found the use of drapes with calibrated markings placed under the woman to 'catch' the blood increased the accuracy of estimated loss – a 2-L blood loss was underestimated by 41% when non-calibrated drapes were used compared to 9–11% with calibrated drapes.

The measured/estimated amount of blood loss should be documented appropriately and referral should be made if this is excessive or the woman is compromised.

THIS IS PART OF THE
CHAPTER ABOUT PPH.